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BONELESS TURKEY ROLL

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Meat is well recognized to be the staple of the American diet—both military and civilian. With meat on the menu, servicemen feel better mentally and physically—and, consequently, fight better. To supply this need, canned meat items, because of their compactness and relatively great shelf life, have been relied upon in the past and no doubt will continue to be in the future—especially if new methods of processing which will modify the "cooked" flavor are successful. However, few would dispute that there is any substitute for fresh animal products wherever refrigeration and cooking facilities permit use of these items. But beef carcasses and even dressed poultry are wasteful of precious shipping space in military transports and other carriers and of indispensable storage space aboard small fighting ships—particularly submarines. One inspired answer to the beef carcass problem was the development, early in the last war, of the famous "3-way Frozen, Boneless Beef"—later replaced by the even more practical "4-way" product. Recently, an answer has been found to the dressed poultry problem. The solution of this problem promises to provide variety in the fresh meat menu of our fighting men wherever they may be stationed. The following article presents the story of the new boneless turkey product that may find wide application by the Services. If it lives up to its promise, it will be yet another item to add to the growing list of new foods being "conditioned" for active duty on the mess table.

The compelling aroma of hot roast turkey has become within the past year almost a commonplace to sailors of the US Navy stationed with the fleet or at shore installations. Formerly a "holiday item" only, because of its very limited storage life, lack of compactness in shipment, and difficulty in preparation, turkey is now adding welcome variety to Navy menus and has aroused the interest of menu planners in at least one of the other Services. What has caused this revolution? The answer is a new type of product called Boneless Turkey Roll, or in military nomenclature—"Turkey, Boneless, Frozen (Raw)." This product gives the hungry serviceman everything he expects of fresh roasted turkey—aroma, taste, texture—everything, that is, but the traditional drumstick.

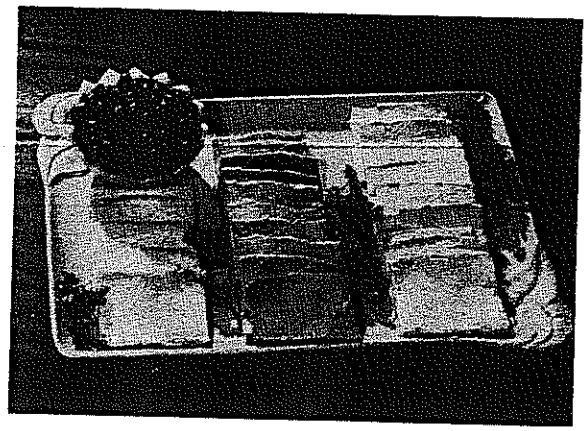
only primal cuts of birds used

Three forms of frozen boneless turkey are permitted by the specification (MIL-T-16660 [S&A]—dated 25 September 1951)—cylindrical, rectangular, and the tied elliptical roll. All three are made from freshly killed young grade A or grade B tom turkeys weighing between 18 and 28 pounds (dressed weight). Only the meat from the breast, legs, and thighs is used. Meat from the wing tips, neck, tail, interior of the body cavity (including fat, giblets, and other organs or glands) is excluded. When completely processed, all three varieties of turkey roll weigh approximately nine pounds.

In a large, well-lit, sanitary "boning room," a corps of skilled workers speedily processes the turkey on a production line basis.

The skill of the "boner" is illustrated in these large pieces of raw turkey cut from a single bird.

Large primal cuts of turkey are placed in the mold in the manner prescribed by specification (left). In picture at right, turkey cuts are being placed in mold, seasoned, and "wrapped" in turkey skin.



The finished product sliced and attractively served has been tempting Navy appetites for the past year.

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Turkey ready for oven in two forms, but the 9-lb. roll at left representing the best edible portions — permits great savings in shipping and storage space.

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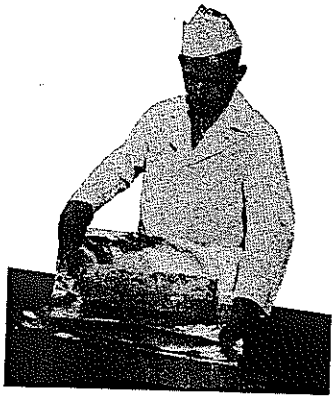
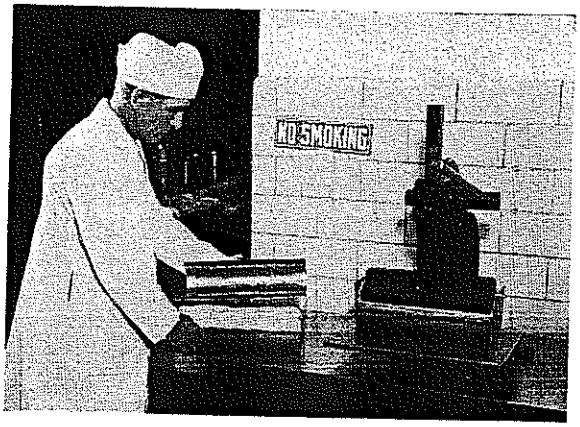
Before quick-freezing, the rough roll is placed in a steel, cylindrical mold and sealed and shaped under pressure so as to exclude air-pockets (right below). It is then tightly hand-wrapped in a sheet of aluminum foil (left below).





Since the cylindrical roll is the only type of boneless frozen turkey product currently being produced for Armed Forces use, its manufacture alone will be considered in the following account of the processing steps. It might be added, however, that the process is almost identical for the rectangular type and very similar in the case of the tied roll variety.

quick, simple manufacturing process

The process of manufacturing boneless turkey involves first the removal of all meat and skin from the bird, excepting the excluded components mentioned above. Both the dark and white meat must, according to the specification, be removed in "as near two pieces as possible," and the skin to be used in preparation of the finished product "shall be removed in not more than two pieces." The total time lapse allowed from the time the bird is removed from the refrigerator until the finished product is placed in the freezer is only one hour if the boning room temperature is between 51° and 60° F., and two hours if the boning room temperature is 50° F. or lower.

After the usable meat and skin have been removed in the approved manner, one of two types of seasoning is added. The first consists of 1¾ pounds of salt, ¼ pound of monosodium glutamate, and ½ pound of sugar per 100 pounds of total meat and skin. The alternate seasoning includes one pound of salt, ½ ounce of pepper (both black and white varieties), and ¼ pound of monosodium glutamate per 100 pounds of total meat and skin.

The meat thus seasoned and in a proportion of not less than 55 per cent white meat and not more than 45 per cent dark meat is next encased in the skin. The complete cylindrical roll thus consists (as prescribed in the specification) of "one layer of dark meat and one layer of light meat (lengthwise) seasoned as specified and completely, or nearly so, encased in skin." As a further point of interest, the weight of the skin must not exceed 14 per cent of the total weight of the meat. Ground or chopped edible turkey fat may be added and distributed lengthwise not to exceed three per cent of the total weight of the meat.

forming, freezing, and wrapping

The product is now ready for the final processing steps. It is first placed in a steel cylindrical mold and sealed and shaped under manual or mechanical pressure so as to exclude all air pockets. Next step is to freeze the product in a mold under pressure so as to provide a frozen finished product which retains the compactness of the unfrozen molded and compressed product. Freezing is accomplished in a sharp freezer or wind tunnel at a temperature not above 0° F. The internal temperature of the product must be no higher than 0° F. within 12 hours.

After its half day in the freezer, the turkey roll is tightly hand-wrapped in a sheet of aluminum foil which protects the meat from dehydration and "freezer burn" in storage and retains in the roll the full flavor and juice during roasting. The foil-wrapped frozen product, weighing approximately nine pounds and measuring four to five inches in diameter by 14 to 15 inches in length, is then placed back under refrigeration and held at a temperature of no higher than 0° F. until time for packing and shipment.

preparing and serving the finished product

Let us examine now the finished frozen product, method of preparation, and the manner of serving.

The compact nine-pound "roll" represents a large proportion of the very best meat of a 24 to 28 pound (dressed weight) fresh young tom turkey. Even the foil wrapping contributes to insuring that nothing desirable is lost between the processing plant and the consumer's plate.

The first step in roasting the turkey roll is to place the frozen raw product in a roasting pan, with the fold in the aluminum foil wrapping upward so as to prevent leakage of juices in roasting. A small amount of water is added to prevent charring and to prevent the wrapper from sticking to the pan.

The pan containing the turkey rolls is then placed in an oven preheated to 350° F. and roasted at that temperature for approximately one hour. Oven temperature is then lowered to 300° F. and the roasting process is continued for another three hours.

Immediately after roasting, the aluminum foil wrapping is opened at the fold and both ends so the concentrated turkey juices can be poured off. These juices may be used in gravy (1 part to 4 parts water), soup, or dressing.

After the juice is poured off, to serve hot, the roll is allowed to cool (1 hour) or until it can be handled warm prior to slicing.

To serve as "cold cuts," the aluminum foil is securely rewrapped around the now roasted turkey roll and the product is placed in the refrigerator. After approximately four hours under refrigeration, the turkey rolls have chilled to around 70° and are ready for removal of the wrapper, slicing, and serving.

slicing

The slicing of the hot or cold turkey roll is in itself a matter that requires care. The roll is first divided into three or even four equal parts. One of these sections is then placed on end and the meat is sliced lengthwise—*with the grain.* Slicing in this way provides either all white or all dark meat equal to slices carved from a bone-in-turkey. It is not recommended that the meat be sliced across the grain as with sausage, as this provides an untypical slice both in the combination of white and dark meat and in the texture. However, if necessary, slicing may be accomplished "across the grain." This is usually required in large-scale feeding where machine slicing is employed.

advantages of the product for armed forces use

The preceding material may already have communicated to the reader some of the very obvious advantages of the turkey roll to the Services. Its compactness alone would recommend it for Armed Forces consideration as making possible great savings in shipping and storage space.[1] For example, 50 eviscerated turkeys packed for shipment will occupy approximately 39 cubic feet of space aboard ship or in the warehouse cold room, whereas an equivalent quantity of turkey in frozen boneless roll form requires less than 13 cubic feet. A space savings of 66 per cent is certainly to be reckoned with, particularly in the crowded confines of a long-range submarine or, for

[1] There is also an appreciable savings in shipping cost, as only the usable portion of the turkey is shipped and handled.

that matter, in certain overseas areas, where space for kitchen activities is at a premium.

Perhaps an equally noteworthy advantage, however, is the comparative ease with which even large "orders" can be prepared as against the comparative manner of preparing turkey. No longer need several harried cooks go through a "night watch" while the birds are in the oven. One man can handle the entire job of preparing and roasting this item and still attend to other mess duties. The obvious corollary is that now even a relatively inexperienced cook can do an A-1 job of preparing a heretofore difficult meal. Furthermore, there is a decided savings in oven space over the old product, and oven shrinkage is cut from 35 to 50 per cent for eviscerated turkey to 16 to 18 per cent for the roll. Each boneless turkey serves about 24 men.

In the final analysis, of course, the proof of the value of the product is still "in the eating." All the savings in cost, in shipping and storage space, and in the preparation process would be meaningless if the product received poor or even only fair acceptance. However, the very critical jury that has been evaluating the product over the past year—thousands of enlisted personnel and officers in widely scattered Navy messes—has thus far returned a verdict of "100% acceptable." It is not unlikely that within the relatively near future the Army enlisted man will be looking forward with actual relish to his traditional Sunday evening meal of "cold cuts"—thanks to frozen boneless turkey roll.

N. J. L.